

Remarks

Reconsideration of the application in view of the following remarks and allowance of all pending claims are respectfully requested. Claims 1-10 remain pending. Applicants gratefully acknowledge the indication that claims 3 and 4 contain allowable subject matter if the rejection under 35 U.S.C. §112, second paragraph is overcome.

Claims 1, 2, and 7 have been amended to more particularly point out and distinctly claim certain features of Applicants' invention. Claim 10 has been amended merely to correct a grammatical error. Support for the amendments to claims 1 and 2 can be found on page 6, lines 3-5, page 6, line 23 to page 7, line 3, and page 7, lines 11-14 of the specification, for example. Support for the amendment to claim 7 is provided on page 6, lines 12-14, FIG. 6 showing locator 31 positioned in stock 35, FIG. 7 illustrating locator 31 of head 17 positioned in head stock 37 and locator 31 of tail 19 positioned in tail stock 39, and page 2, lines 11-21 of the specification, for example. The amendments to the claims hereinabove are not meant to indicate Applicants' acquiescence to the substance of the outstanding Office Action. No new matter is added to the application by any amendment presented.

35 U.S.C. §112 Rejection

In the Office Action dated November 29, 2004, claims 3 and 4 were rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. The Office Action further states that there is a lack of antecedent basis in the specification for the claimed feature. Applicants respectfully traverse this rejection because the specification provides an antecedent basis in various places for each riser being a small rounded dam. For example, please see page 5, lines 21-22, riser 13 illustrated in FIG. 2, and riser 13 illustrated in FIG. 4.

Applicants respectfully submit that the disclosure in specification identified above provides a sufficient antecedent basis to overcome the rejection under 35 U.S.C. §112, second paragraph. Therefore, Applicants respectfully request withdrawal of the rejection of claims 3

and 4 under 35 U.S.C. §112, second paragraph, and respectfully solicit allowance of claims 3 and 4.

35 U.S.C. §102(b) Rejection

In the Office Action, claims 1, 2, 7, 8, and 10 were rejected under 35 U.S.C. §102(b) as being unpatentable over Ostrowski (U.S. Patent No. 4,064,927). Applicants respectfully traverse this rejection because the cited publication does not teach or suggest all of the elements of Applicants' claimed invention and, therefore, does not anticipate the claimed invention as explained below.

One aspect of Applicants' present invention addresses the problem of lost product in a lost wax process for casting due to an excess of molten wax, which may be produced during the welding of wax patterns to a wax runner, running over the side of the wax runner (page 2, lines 9-11 of the specification). In accordance with the present invention as recited in claim 1, a wax runner for use in forming a wax tree comprises the following structures: a branch of wax including a head at one end and a tail at the other end; and a plurality of risers located on the surface of the branch. The risers are configured to confine molten wax to an area of the surface of the branch. For example, in one embodiment as illustrated in FIGS. 1 and 2 (an end view of the wax runner shown in FIG. 1), the risers 13 are structures on surface 27 of a branch 15 of wax runner 11 that are raised with respect to surface 27 of the branch on which the gates of wax patterns 29 are welded (page 5, lines 18-19, page 5, line 22 to page 6, line 2 of the specification).

Ostrowski does not teach or suggest all of the elements of Applicants' claimed invention, as recited in claim 1, because it does not teach or suggest "a plurality of risers located on the surface of the branch of the wax runner, wherein the risers are configured to confine molten wax to an area of the surface." As a preliminary matter, it should be noted that Ostrowski's definition of the term "riser" differs from Applicants' definition. Ostrowski describes an investment mold assembly that consists of a plurality of upright (i.e. vertically oriented) wax risers 11 carrying a plurality of wax patterns 12 (col. 2, lines 41-46); that is, Ostrowski's riser 11 is structurally analogous to Applicants' branch because it is the branches which carry the wax patterns as

illustrated in FIGS 1 and 4 of the specification. Therefore, Ostrowski's "riser" is a vertically oriented branch. Although Ostrowski uses the word "riser", Applicants respectfully submit that this patent does not teach or suggest "a plurality of risers located on the surface of the branch of the wax runner, wherein the risers are configured to confine molten wax to an area of the surface."

Also, Ostrowski shows each face of riser 11 having a large, flat surface with one narrow, vertical groove 13 thereon in FIG. 1. Although the large, flat surface of a face of riser 11 in FIG. 1 of Ostrowski is raised with respect to groove 13, Applicants respectfully submit that riser 11 does not confine molten wax to an area of the surface because riser 11 cannot prevent excess molten wax from running off, particularly in the vertical direction. Groove 13 runs the length of riser 11 in FIG. 1 of Ostrowski, and FIG. 1 of Ostrowski does not show any other feature on riser 11 that would confine the flow of excess molten wax. Moreover, Ostrowski describes the vertical grooves in the risers as being adapted to permit automatic alignment of the patterns 12 on the risers for accurate assembly (col. 4, lines 24-27). Ostrowski is not concerned with preventing excess molten wax from running off the risers, and this patent does not teach or suggest a structure for confining excess molten wax. Furthermore, Ostrowski describes the "alignment of the of patterns 12 on the risers." This is in contrast to Applicants' invention. FIGS. 2, 4, and 8 of the specification clearly show that the wax pattern 29 is attached to the surface 27 of branch 15 of runner 11 between risers 13 and that the wax pattern 29 is not attached to riser 13. Also, the specification explicitly states the importance only melting wax on surface 27 between the risers when welding wax patterns to the runner (page 5, line 22 to page 6, line2). Therefore, for all of the reasons stated above, Applicants respectfully submit that Ostrowski does not teach or suggest "a plurality of risers located on the surface of the branch of the wax runner, wherein the risers are configured to confine molten wax to an area of the surface." Accordingly, Applicants respectfully submit that the claimed invention, as recited in claim 1 is not anticipated by Ostrowski, and withdrawal of the rejection based thereon is respectfully requested.

Applicants respectfully submit that claim 2 is patentable for the reasons stated above with respect to claim 1. Claim 2 recites a wax runner including one or more branches of wax having at least one flat surface and risers located along the edges of the one or more flat surfaces of each branch, wherein “the risers are configured to confine molten wax to an area of the flat surface.”

Another aspect of Applicants’ present invention addresses the problem of positioning a wax runner in a fixture of an automated pattern assembly system (page 2, lines 11-21 of the specification, for example). In accordance with the present invention as recited in claim 7, a wax runner for use in forming a wax tree comprises the following structures: a branch of wax having a tail at one end and a head at the other end; and at least one locator on the head and the tail. The locators on the head and tail of the wax runner are aligned with one another and adapted to facilitate positioning of the wax runner in a fixture of an automated pattern assembly system.

Ostrowski does not teach or suggest all of the elements of Applicants’ claimed invention, as recited in claim 7, because it does not teach or suggest a wax runner comprising “at least one locator on the head and the tail, both locators being aligned with one another and adapted to facilitate positioning of the wax runner in a fixture of an automated pattern assembly system.” Instead, FIG. 1 of Ostrowski shows two wax parts, which are located between riser 11 and distal connecting portion 23 of arm 22. These two wax parts were construed as locators in the Office Action. However, even assuming arguendo that these two wax parts in Ostrowski are locators, these two wax parts are adapted for connecting riser 11 to distal connecting portion 23 of arm 22, as shown in FIG. 2 of Ostrowski. Ostrowski does not teach or even suggest locators on a tail at one end of a branch and on a head at the other end which are “adapted to facilitate positioning of the wax runner in a fixture of an automated pattern assembly system.” Moreover, Applicants found no mention of positioning a wax runner in an automated pattern assembly system in Ostrowski. Therefore, for all of the reasons stated above, Applicants respectfully submit that Applicants’ claimed invention, as recited in claim 7 is patentable over Ostrowski, and withdrawal of the rejection based thereon is respectfully requested.

Claim 10 depends from claim 7 and recites further aspects of the present invention. Applicants respectfully submit that claim 10 is patentable for the reasons stated above with respect to claim 7 and for the recitation further aspects of the present invention.

For all of the foregoing reasons, Applicants respectfully request withdrawal of the rejection of claims 1, 2, 7, 8, and 10 as being anticipated by Ostrowski. Allowance of claims 1, 2, 7, 8, and 10 is respectfully solicited.

35 U.S.C. §103(a) Rejection

In addition, claims 5, 6, and 9 were rejected under 35 U.S.C. §103(a) as being obvious in view of Ostrowski. Applicants respectfully traverse this rejection for the following reasons. Claims 5, 6, and 9 depend from independent claims 1, 2, and 7, respectively. Consequently, each of claims 5, 6, and 9 includes all elements recited by the claim from which it depends. Therefore, for the reasons stated above with respect to claims 1, 2, and 7, Ostrowski does not teach or suggest all elements of recited by claims 5, 6, and 9, respectively. Accordingly, Applicants respectfully request withdrawal of the rejection under 35 U.S.C. §103(a) based Ostrowski and allowance of claims 5, 6, and 9.

For the reasons discussed above, Applicants respectfully submit that claims 1-10 recite patentable subject matter over the applied art. Withdrawal of the rejections of claims 1-10 is respectfully requested, and allowance of all pending claims is respectfully solicited.

Should the Examiner wish to discuss this case with Applicants' attorney, please contact Applicants' attorney at the phone number listed below.

Respectfully submitted,

A handwritten signature in cursive script, reading "Stephen M. Hladik", is written over a horizontal line.

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